Chapter 2 A Tropical Alberta

One of the more popular activities in the Rocky Mountains is hiking. Imagine you are on a guided hike on Mount Wapta in Yoho National Park. Just before you get to the steep cliffs by one of the remaining snow banks on the mountain's right side, you notice a camp of university researchers digging and splitting shale. In the flat pieces of rock are impressions and remains of strange creatures that you have never seen before. Some of them are obviously swimming organisms.

You might start to wonder why these creatures are now found in rock on the side of a mountain. In an environment where the most common organisms around you now are lichens growing on rocks, how can these complex creatures be here? How old are they? Some of them are mysterious—are they plant or animal?

In this chapter you will learn about the geology of Alberta in both the Paleozoic and Mesozoic eras. You will be able to explain how the remains of animals can last for millions of years, and you will also determine what information they can tell people about the ancient environment.

Try This Activity

Interpreting Fossil Evidence

Introduction

In Chapter 1 you made a fossil by embedding an object in plaster of Paris so that it would leave a permanent impression. This impression has become an artificial fossil. Since your classmates don't know what object you used to make the impression, and you don't know the objects they used, this activity turns into a simulation of the detective work scientists do when they're attempting to interpret fossil evidence.

Purpose

You will make careful observations of the fossil impressions made by your classmates. In each case you will use your observations in an attempt to determine the identity of the original object that made the impression.

Materials

- object embedded in the plaster of Paris mould
- felt-tipped pen with permanent ink
- safety glasses
- newspapers or cardboard to catch any crumbling pieces of material
- hammer, flat-bladed screwdriver, or some other tool to help pry open your mould if it's stuck

CAUTION!

Direct the prying tool away from yourself and others.

Procedure

step 1: Put on your safety glasses and spread the newspapers or cardboard on your work area. Gently work the plaster out of the container. A line should be visible between the first and second layers. Carefully tap the line with a hammer, and the layers should split. If they don't, you must carefully pry the layers apart with a screwdriver or some other prying tool.

step 2: Without disturbing the impression, remove the object that created the impression in the plaster of Paris. Keep this object hidden from your classmates. Decide which half of the impression to put on display. Write your name just below the impression that your classmates will analyze.

Science Skills

- ✓ Performing and Recording
- ✓ Analyzing and Interpreting

step 3: Clean up the work area and prepare the impression of your fossil for display.

step 4: Set up a table with the following columns, and complete the first three columns by carefully examining each fossil created by your classmates. You may need to add more rows.

Name of Person Who Built Impression	Observations of Impression Left by Embedded Object	Suspected Identity of Embedded Object	Actual Identity of Embedded Object

step 5: Once everyone has examined all of the fossil impressions, each person should place the other half of the impression—as well as the embedded object—beside the half examined by the class.

step 6: Return to the fossil table. Complete the last column of the table.

Analysis

1. Compare your results with the findings of the other students.
   a. List the fossil impressions where students had the greatest success identifying the embedded object.
   b. List the fossil impressions where students had the most difficulty identifying the embedded object.
   c. How do you account for differences in the last two columns?
   d. Would your answers to 1.a. and 1.b. change if the class had access to both parts of the impression? Explain.
2. You embedded a single object. How would your fossil impression be different if you used an object composed of many parts held together with water-soluble glue?